

WHAT IS CLAIMED IS:

1 1. A method for forming silicon quantum dots comprising the
2 steps of:

3 forming a first insulating film on a semiconductor substrate;

4 forming a plurality of nano-crystalline silicons on the first
5 insulating film;

6 forming a second insulating film on the first insulating film
7 including the nano-crystalline silicons;

8 partially etching the second insulating film and the nano-
9 crystalline silicons; and

10 oxidizing surfaces of the nano-crystalline silicons.

11 2. The method of claim 1, wherein the nano-crystalline
12 silicons are formed at a size of about 30nm.

13 3. The method of claim 1, wherein the second insulating film
14 and the nano-crystalline silicons are etched by etching the nano-
15 crystalline silicons by about 10nm.

4. The method of claim 1, wherein the nano-crystalline silicons are oxidized by about 5nm.

1 5. A method for fabricating a nonvolatile memory device
2 comprising the steps of:

3 forming a tunnelling insulating film on a semiconductor
4 substrate;

5 forming a plurality of nano-crystalline silicons on the
6 tunnelling insulating film;

7 forming a first insulating film on the tunnelling insulating
8 film including the nano-crystalline silicons;

9 partially etching the first insulating film and the nano-
10 crystalline silicons;

11 oxidizing surfaces of the nano-crystalline silicons;

12 forming a second insulating film on the first insulating film
13 including the nano-crystalline silicons;

14 forming a control gate on the second insulating film;

15 removing the second insulating film, the nano-crystalline
16 silicons, and the tunnelling insulating film using the control gate
17 as a mask; and

